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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/689,665	10/22/2003	Antero Laine	30-569	6493

23117 7590 09/16/2005

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EXAMINER	
KINNEY, ANNA L	

ART UNIT	PAPER NUMBER
1731	

DATE MAILED: 09/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/689,665	LAINE ET AL.	
	Examiner	Art Unit	
	Anna Kinney	1731	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 June 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-9,11,12,14-19 and 26* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-9,11,12,14-19 and 26* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *22 October 2003* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☒ Certified copies of the priority documents have been received in Application No. 09/787,629.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

15

DETAILED ACTION

Response to Arguments

Applicant's arguments with respect to claims 1-25 have been considered but are moot in view of the new ground(s) of rejection.

However, in response to applicant's arguments regarding Gervasi (page 8 of Remarks), the applicant's own specification indicates that breakdowns may be anticipated (page 9, line 20). Although Gervasi also anticipates shutdowns, no timeframe is provided to suggest that this process is batch rather than continuous. Furthemore, a continuous process is not specifically claimed. Therefore, the applicant's argument is not persuasive.

Also, in response to applicant's arguments that the Gervasi filter differs from the Reinhall apparatus, the arguments are not persuasive. The Examiner is not combining the entire filter with the Reinhall apparatus, but is only applying the cleaning member. Gervasi discloses that the worm (the cleaning member) enables surplus cake (thickened pulp) to be removed and conveyed to the bottom continuously (column 3, lines 37-39). Therefore, the Examiner disagrees that these references cannot be combined.

Drawings

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: Figure 2 identifies filtrate flow as "F", whereas the specification identifies filtrate flow as "F_{out}" (page 9, line 2). In addition, page 10, line 14 of the specification

mentions a scrap trap (item 50) which is not shown in the figures. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: Method for the controlled thickening of low consistency fiber suspensions.

The disclosure is objected to because of the following informalities:
On page 12, line 16, the specification identifies a mechanical member", items 30 and 32, which conflicts with the descriptions of items 30 and 32 previously identified in the specification. Item 30 was identified as a shaft on page 9, line 6, and item 32 was identified as at least one screw thread on page 9, line 9.

On page 13, line 8, the Examiner recommends deleting the word "that" between the words "though" and "by".

Appropriate correction is required.

Claim Objections

Claim 5 is objected to because of the following informalities: the word "sped" in the second line should be "speed". Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1 through 26 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claims 1 and 26, the phrase "such as" renders the claim indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

Regarding claims 1 and 26, the term "essentially" renders the claim indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention.

Claims 1 and 26 recite the limitation "the thickened pulp and filtrate" in line 12 of each claim. There is insufficient antecedent basis for this limitation in the claim. The limitation "the thickened pulp" is not clearly the same as or different than the previously recited limitation "said layer of thickened pulp". "Filtrate" has not been recited previously.

Claims 1 and 26 recite the limitation "the essentially non-thickened pulp" in lines 17 and 20 of each claim. There is insufficient antecedent basis for this limitation in the

claim. The claims previously recite "low consistency pulp" and "layer of thickened pulp", but do not recite the limitation "the essentially non-thickened pulp". The Examiner finds the concept of "essentially non-thickened" unclear. As discussed in the specification, pulp can be processed through a range of consistencies. The Examiner assumes "non-thickened" would refer to pulp entering the apparatus prior to thickening.

Claims 1 and 26 recite the limitation "the space" in line 18 of each claim. There is insufficient antecedent basis for this limitation in the claim. No space is recited previously in either claim. If this space is not an inherent feature of a cleaning member and shaft, then this limitation should be provided antecedent basis. The Examiner suggests changing the phrase to read "a space".

Claims 2 through 25 are dependent on claim 1, so the above rejections would also apply to these claims.

Claim 4 recites the limitation "the filter" in line 2 of the claim. There is insufficient antecedent basis for this limitation in the claim. Claim 4 is dependent upon claim 2, but a filter is not introduced until claim 3. In addition, previous recitations to the pre-thickener have been made to a "pre-thickener apparatus". The Examiner suggests that the applicant should make the term "pre-thickener" in line 2 of the claim consistent with the previous recitations.

Claims 5 and 6 recites the limitation "the thickened layer of pulp" in line 2 of each claim. There is insufficient antecedent basis for this limitation in the claim. Previous recitations to a layer of pulp have been made to a "layer of thickened pulp". The term as recited in claims 5 and 6 suggests that additional layers of pulp might also exist,

which does not appear to be the applicant's intention. The Examiner recommends making the limitation in claims 5 and 6 consistent with previous recitations.

Regarding claim 7, the Examiner finds the reference to "the *discharge* end of the apparatus" unclear as it relates to "the *feeding* speed of the screw" and "the flow speed of the *non-thickened* pulp". The two latter limitations appear to have more relation to the "feeding end" of the apparatus. The speed of pulp flow at the discharge end should be of thickened pulp, and the speed of the screw at the discharge end should be a discharge speed.

Claims 15 and 26 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The claims include a limitation for "a process signal obtained from a previous or later process stage". The Examiner found no reference to such a process signal in the specification. In addition, with respect to claim 26, the Examiner found no reference to regulating the flow of incoming pulp.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 1, 5, 6, 8, 9, 11, 12, 14, 15, 16, and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Reinhall (U.S. Patent 3,682,444) in view of Gervasi (U.S. Patent 4,085,050).

With respect to claim 1, Reinhall discloses a method of treating pulp such as fiber suspensions (column 1, lines 6-8) of the paper and wood (column 2, lines 38-43) processing industry, said method comprising the steps of: introducing a low consistency pulp (column 2, lines 43-45) into a pre-thickener apparatus (Figure 1, item 10) having a filter surface (column 1, lines 12-17) and a cleaning member (column 2, lines 30-32), removing liquid from the pulp (column 1, lines 12-17) in said pre-thickener apparatus essentially by means of the effect of the feeding pressure (column 1, lines 23-25) of the pre-thickener apparatus, allowing a layer of thickened pulp to be formed on the filter surface (column 2, lines 49-53) of the pre-thickener apparatus, wiping said layer of thickened pulp off the filter surface of said pre-thickener apparatus with the cleaning member (column 2, lines 49-53), and discharging the thickened pulp (column 2, lines 53-57) and filtrate (column 2, lines 22-27) from said pre-thickener apparatus, and wherein said method further comprises the steps of; pushing the layer of thickened pulp by said cleaning member along said filter surface to the discharge end of the pre-thickener apparatus in essentially an axial direction (column 2, lines 49-53), while simultaneously guiding a part of said essentially non-thickened pulp flow to a portion of the filter surface being wiped by the cleaning member (Figure 1); regulating the flow speed of the pulp (column 3, lines 2-11) in the pre-thickener apparatus by means of valves for the filtrate (Figure 1, item 68) and the thickened pulp (Figure 1, item 60); and

controlling the thickening of the pulp in response to input power of the cleaning member (column 3, lines 2-11).

Reinhall does not disclose expressly allowing the essentially non-thickened pulp to flow through the apparatus from the feeding end to the discharge end via the space between said cleaning member and a shaft of the apparatus.

Gervasi discloses allowing the essentially non-thickened pulp to flow through the apparatus from the feeding end to the discharge end (Figure 1) via the space between said cleaning member and a shaft of the apparatus (column 5, lines 29-34).

With respect to claim 8, Reinhall discloses using a pump so as to create the feeding pressure of the pre-thickener apparatus (column 1, lines 23-25).

With respect to claim 9, Reinhall discloses regulating the flow of filtrate (column 3, lines 2-11) with valves (Figure 1, item 32).

With respect to claim 11, Reinhall discloses regulating the consistency of the thickened pulp to a desired value by changing a flow amount ratio between the thickened pulp and the filtrate (column 3, lines 2-11).

With respect to claim 12, Reinhall discloses regulating the consistency of the thickened pulp to a desired value by changing a flow amount ratio between the low consistency pulp to be thickened and the filtrate (column 3, lines 2-11).

With respect to claim 14, Reinhall discloses that said step of controlling the thickening of the pulp comprises maintaining a constant pressure difference over the filter surface (column 3, lines 2-16).

With respect to claim 15, Reinhall discloses said step of controlling the thickening of the pulp further comprises controlling the thickening of the pulp in response to a process signal obtained from a later process stage (column 3, lines 26-50).

With respect to claim 26, Reinhall further discloses controlling the thickening of the pulp by regulating the flow of filtrate with valves (Figure 1, item 60); and controlling the valves in response to input power of the cleaning member (column 3, lines 2-11) or in response to a process signal obtained from a later process stage (column 3, lines 26-50).

With respect to claim 16, Reinhall does not disclose expressly that the thickening of the pulp further comprises changing the rotational speed of the cleaning member.

Gervasi discloses that the cleaning member is rotated by a variable speed motor (column 4, lines 25-30).

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to drive the cleaning member of Reinhall with a variable speed motor as described by Gervasi to obtain the invention as specified in claim 16. It would also have been obvious to optimize the rotational speed of the cleaning member to achieve or maintain optimal thickening.

With respect to claims 5 and 6, Reinhall and Gervasi do not disclose expressly rotating the cleaning member at a rotational speed sufficient to create a flow speed for the thickened layer of pulp of less than 3 m/s towards the discharge end of the pre-thickener apparatus, or between 0.2-1.0 m/s, preferably about 0.5 m/s. However, Reinhall does disclose that if the stirrer meets increased resistance, the power required

to operate the motor will be increased (column 3, lines 2-11). The Examiner considers this to mean that the stirrer is operated at a preselected fixed speed. Reinhall further discloses adjusting the rate of dewatering to achieve a predetermined level of concentration (column 3, lines 11-20).

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to optimize the flow speed of the pulp through the apparatus. The motivation would have been to maintain the concentration of the fiber pulp at a predetermined level with only small deviations (column 1, lines 55-58). With respect to claim 6, the Examiner has interpreted the claim to include the wider range of 0.2-1.0 m/s.

Reinhall and Gervasi are analogous art because they are directed to a similar problem solving area, that of removing a layer of thickened material from a filter surface.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use a cleaning member with a space between the member and the shaft as described by Gervasi in the thickener of Reinhall to obtain the invention as specified in claims 1, 5, 6, 8, 9, 11, 12, 14, 15, and 26. The motivation for doing so would have been that it enables the surplus cake formed to be removed and conveyed to the bottom continuously (column 3, lines 37-39).

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Reinhall and Gervasi as applied to claim 1 above, and further in view of Iyengar (U.S. Patent 4,582,568).

With respect to claim 7, Reinhall and Gervasi do not disclose expressly that the cleaning member comprises a rotatable screw, and wherein the feeding speed of the screw and the flow speed of the non-thickened pulp are essentially the same at the discharge end of the apparatus. However, as discussed in the 35 U.S.C. 103(a) rejection of claim 1, above, it would have been obvious to optimize the flow speed of the pulp. The feeding speed is determined by a pump (column 1, lines 23-25), and would similarly be obvious to optimize.

Iyengar discloses that the cleaning member comprises a rotatable screw (column 1, lines 38-40.

Reinhall, Gervasi, and Iyengar are analogous art because they are all directed to a similar problem solving area, that of removing a layer of thickened material from a filter surface.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use a rotatable screw as described by Iyengar in the thickener of Reinhall and Gervasi to obtain the invention as specified in claim 7. The motivation would have been that the screw contributes to pulp flow (column 1, lines 42-43).

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Reinhall and Gervasi as applied to claim 1 above, and further in view of Smook (Smook, G.A., Handbook for Pulp & Paper Technologists, 1982, TAPPI and Canadian Pulp and Paper Association, p. 109) and Iyengar.

With respect to claim 2, Reinhall and Gervasi do not disclose expressly supplying pulp to said pre-thickener apparatus from a screen, the screening consistency of which is about 2 - 4 %.

Smook discloses supplying pulp to a thickener from a screen (page 109, column 2, lines 2-5).

Iyengar discloses supplying pulp to a thickener in a consistency range of 2 to 12% (column 3, lines 36-38), which contains one endpoint from the claimed range of 2-4%.

Reinhall, Gervasi, Smook, and Iyengar are analogous art because they are all directed to a similar problem solving area, that of controlling the consistency of a suspension.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to supply pulp from a screen as described by Smook in the consistency range described by Iyengar to the thickener of Reinhall and Gervasi to obtain the invention as specified in claim 2. The motivation to do so would have been that following low-consistency operations such as cleaning and screening, it is necessary to thicken the stock prior to the next process operation ((page 109, column 2, lines 2-5) and that thickening of suspensions can be grouped into several solid ranges, namely, 0.5 to 3%, 3 to 10%, and 10 to 40% (Iyengar, column 1, lines 17-19). The suspension as fed into the dewaterer has a very low pulp concentration (Reinhall, column 2, lines 43-45).

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Reinhall and Gervasi as applied to claim 1 above, and further in view of Henricson et al (U.S. Patent 5,147,504).

With respect to claim 3, Reinhall and Gervasi do not disclose expressly that the pulp thickened by the pre-thickener apparatus is taken into a filter, the feeding consistency of which is 3 - 6 %.

Henricson et al disclose thickening pulp prior to processing pulp in a filter (column 3, lines 36-56) with a feeding consistency of 3% or 4.5% (column 3, lines 48-51), which contains two specific points (3, 4.5) within the claimed range of 3-6%.

Reinhall, Gervasi, and Henricson et al are analogous art because they are all directed to a similar problem solving area, that of controlling the consistency of a suspension.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use the thickener of Reinhall and Gervasi before the filter described by Henricson et al to obtain the invention as specified in claim 3. The motivation for doing so would have been that the low consistency of the fiber suspension requires a large filter (column 3, lines 36-41).

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Reinhall, Gervasi, Smook, and Iyengar, as applied to claim 2 above, and further in view of Henricson et al.

With respect to claim 4, Reinhall and Gervasi do not disclose expressly that between the screen and the filter the consistency of the pulp is raised by said pre-thickener by 1 - 4 %.

Henricson et al disclose that the consistency of pulp without thickening is approximately 1.5% (column 3, lines 41-44). As noted in the rejection of claim 3, above, Henricson et al disclose an inlet consistency of 3% or 4.5%. Therefore, the consistency of the pulp is raised by a pre-thickener is 1.5-3%, which contains two specific points (1.5, 3) within the claimed range of 1-4%.

Reinhall, Gervasi, Smook, Iyengar, and Henricson et al are analogous art because they are all directed to a similar problem solving area, that of controlling the consistency of a suspension.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to require a consistency increase as described by Henricson et al from the thickener of Reinhall, Gervasi, Smook, and Iyengar to obtain the invention as specified in claim 4. The suggestion would have been that if the consistency of the pulp entering the filter is 3%, only 400 tons of liquid have to be removed and if the inlet consistency is 4.5%, only 233 tons of liquid have to be removed (column 3, lines 48-51).

Claims 17, 18, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Reinhall and Gervasi as applied to claim 1 above, and further in view of Campbell (U.S. Patent 3,833,465) and Smook.

With respect to claims 17 and 18, Reinhall and Gervasi do not disclose expressly using said filtrate for dilution in a previous process stage, or in the same process stage.

Campbell discloses using said filtrate for dilution in a previous process stage and in the same process stage (column 3, lines 60-66).

With respect to claim 19, Reinhall, Gervasi, and Campbell do not disclose expressly separating fibers from said filtrate by a fiber separating means prior to reusing the filtrate. However, at the time of the invention, it would have been obvious to a person of ordinary skill in the art that some fibers would separate from the filtrate in the filtrate chest (Figure 1, item 13) by means of gravity.

Reinhall, Gervasi, and Campbell are analogous art because they are all directed to a similar problem solving area, that of controlling the consistency of a suspension.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to reuse thickener filtrate as described by Campbell from the thickener of Reinhall and Gervasi to obtain the invention as specified in claims 17, 18, and 19. The motivation would have been that the initial filtrate is relatively cloudy and can be segregated for dilution uses (Smook, p. 111, column 2, lines 9-11).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anna Kinney whose telephone number is (571) 272-8388. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on 571-272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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